

REMARKS

Claims 1-25 are pending. Claims 1 and 16 are amended and the specification has been amended to correct minor informalities found therein.

In paragraph 8, on page 9 of the Office Action, it was indicated that claims 10 and 24 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. Applicant appreciates this indication of allowability but submits that claims 1 and 16, the claims from which claims 10 and 24 respectively depend, are allowable for the reasons discussed below.

In paragraph 2, on page 2 of the Office Action, claims 1-9, 11, 16, 18 and 20-23 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,712,357 to Tranquilla. The rejection is respectfully traversed.

Applicant's claim 1 calls for a recording medium conveying device that conveys a recording medium to a recording area, comprising a pair of first conveyor rollers that are provided upstream of and adjacent to the recording area and convey a recording medium by nipping the recording medium therebetween; a detector that detects a position of the recording medium; a nipping force changing unit that changes the nipping force of the pair of first conveyor rollers; and a controller that controls an operation of the nipping force changing unit in accordance with the position of the recording medium detected by the detector.

Applicant's claim 16 calls for an image forming apparatus that forms an image onto a recording medium, comprising an image forming device that forms an image onto the recording medium; a platen that is provided facing a recording operating service of the image forming device; a pair of first conveyor rollers that are provided upstream of and adjacent to the recording area of the image forming device and convey the recording medium by nipping the recording medium therebetween; a detector that detects a position of the recording

medium; a nipping force changing unit that changes the nipping force of the pair of first conveyor rollers; and a controller that controls an operation of the nipping force changing unit in accordance with the position of the record medium detected by the detector. Thus, both of the Applicant's independent claims call for the pair of first conveyor rollers provided upstream of and adjacent to the recording area. Tranquilla discloses no such thing.

Tranquilla discloses a printing device for document handling systems, such as check processors, tag printers and ticket printers (col. 1, lines 14 and 15). The transport area through the print area, which is defined by a hammer bank 124 opposing a print drum 126 and ribbon 128, includes a capstan 118 opposed by a pinch roller 120, that is immediately upstream of and adjacent to the hammer bank 124/print drum 126, and an exit transport element 130 comprising a drive roller 132 and a pinch roller 134. Further upstream, from the capstan 118/pinch roller 120, is an entrance transport element 112. The entrance transport element 112 includes a drive roller 114, a pinch roller 116 and a pinch force release mechanism 152. The entrance transport element 112 is a high speed delivery element that passes the material to the capstan 118/pinch roller 120 position. Between the capstan 118/pinch roller 120 and hammer bank 124/print drum 126 is an edge sensor 122.

This structure provide two methods of operation, one for long documents and one for short documents. Only in the long documents is the pinch force release mechanism 152 activated to release the pinch roller 116 of the entrance transport element 112.

Thus, in Tranquilla, the capstan 118/pinch roller 120 and drive roller 132/pinch roller 134 constantly rotate. When the leading edge of a document is detected by the edge sensor 122, the pinch roller 116 is separated from the drive roller 114 of the entrance transport element 112. At this time, the pinch force release mechanism 152 is in a non-pinch force mode. However, the entrance transport pinch force F_p of the capstan element 118

against the pinch roller 120 is retained because the sensor 122 is downstream of the capstan 118.

The document 110 then is decelerated to a document processing position, as shown in Fig. 3b. Document processing is then performed and the capstan element 118 accelerates the document 110 toward and up to the speed of the exit transport element 130. At this time, the pinch force of the entrance transport element 112 is reapplied to increase the speed or to assist the capstan element 118 in accelerating the document 110 (col. 4, lines 41-64).

The preceding is for a long document. For a short document, the pinch roller 116 is not released and remains always in the pinch force mode primarily because a short document will clear the pinch force release mechanism 152, that is the drive roller 114/pinch roller 116. Thus, the paired rollers, the capstan element 118/pinch roller 120, on the upstream side of the print mechanism always maintain contact with the document 110. They never release until the document passes through their nip portion.

The further upstream pair of rollers, the entrance transport element 112 comprising a drive roller 114/pinch roller 116, release for long documents but repinch to assist in accelerating the document toward and up to the speed of the exit transport element 130. Therefore, the releasing elements are not at Applicant's claimed position upstream of and adjacent to the recording area. In fact, Tranquilla teaches precisely doing what Applicant identifies as a problem, that is the speeding up of the document by the upstream conveyor rollers during release. In the claimed invention, the release of the nip rollers of the upstream rollers prevents the sudden acceleration of the document which can lead to improper printing (see paragraph [0005], [0048] and [0049]).

Further, Tranquilla says nothing about reducing the nipping forces of the first conveyor rollers, their entrance transport element 112 step by step (claim 4); allowing the nipping force changing unit to change the nipping force while the pair of first conveyor rollers

are not driven (claim 6); the detailed actions found in claim 8; the actions found in claim 9; anything about intermittently driving the pair of conveyor rollers (claim 18); allowing the nipping force changing unit to change the nipping force while the first pair of conveyor rollers are not driven (claim 20), or the details of claims 22 and 23. Likewise, Tranquilla does not anticipate the subject matter of the remaining rejected claims for all of the reasons discussed with respect to claims 1 and 16 and for the additional features recited. As Tranquilla does not literally disclose claimed invention, it is respectfully requested the rejection be withdrawn.

In paragraph 4, on page 5 of the Office Action, claims 12 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tranquilla in view of U.S. Patent No. 5,129,749 to Sato. The rejection is respectfully traversed.

Sato discloses for a complex pressing device. The pressing device includes a pressing lever 13 that is mounted to a transverse shaft 6 at one end. At the opposite end of the pressing lever 13 is a pressing cam 7 that presses against the pressing lever 13. A pinch roller 2 is mounted via spring 3 to a spring holder 5 which is attached to the pressing lever 13. The pinch roller 2 is closer to the transverse shaft 6 than to the cam 7. It is unclear how such a device would be applied to the apparatus of Tranquilla which has its own separation mechanism. There has also been no motivation or suggestion of combining the two devices as Sato controls the pinching force of an upper roller, whereas Tranquilla releases a lower roller. Lastly, as noted, the pinching pair of Tranquilla is removed from the printing area. For all of the foregoing reasons, there is nothing to suggest the combination and any combination made does not suggest the subject matter of claims 12 and 13. Sato does not overcome the deficiencies of Tranquilla with respect to claim 1 and there is no motivation or suggestion to combine the two, so the combination does not suggest the subject matter of either claim 12 or 13. It is respectfully requested the rejection be withdrawn.

In paragraph 5, on page 6 of the Office Action, claims 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tranquilla in view of U.S. Patent No. 4,619,451 to Dodge. The rejection is respectfully traversed.

Dodge discloses a drive roller biasing mechanism. Specifically, each one of the drive rollers may be individually adjusted so that a proper balancing of bite pressures result (abstract). The adjustments are done via a screw cap 13 (reference number omitted in Fig. 1). Thus, this is a manual adjustment. Applicant's claims 14 and 15 indicate that the nipping force changing unit is controlled by a controller to either produce the same strength (claim 14) or varying strengths at the first conveyor rollers depending on the relationship to the center of the recording medium (claim 15). Thus, Dodge does not suggest the subject matter of either claims 14 or 15. Further, Dodge does not overcome the deficiencies of Tranquilla with respect to claim 1. Therefore, it is respectfully requested the rejection be withdrawn.

In paragraph 6, on page 7 of the Office Action, claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tranquilla in view of U.S. Patent No. 4,053,224 to Burkard et al. The rejection is respectfully traversed.

Burkard does not overcome the deficiencies of Tranquilla with respect to claim 16. Therefore, the combination does not suggest subject matter of claim 17. It is therefore respectfully requested the rejection be withdrawn.

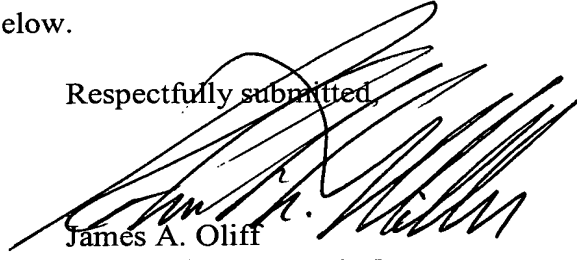
In paragraph 7, on page 8 of the Office Action, claims 19 and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tranquilla in view of U.S. Patent No. 5,580,042 to Taniguro et al. (Taniguro). The rejection is respectfully traversed.

Taniguro does not overcome the deficiencies of Tranquilla with respect to claim 16. Thus, the combination does not suggest subject matter of claims 19 and 25. Therefore, it is respectfully requested the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-25 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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